A. B. Bancroft.

ACCIDENTS:

POPULAR DIRECTIONS

FOR THEIR

IMMEDIATE TREATMENT;

WITH OBSERVATIONS ON

POISONS AND THEIR ANTIDOTES.

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"For want of timely care, millions have died of medicable wounds."

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PREFACE.

THE following pages are submitted to the public with the hope that the information they contain may be of service to those subjected to sudden accidents under circumstances where a surgeon cannot be immediately obtained. The object of the work, as its title suggests, is strictly "popular," and is intended to impart advice to the *people generally*, rather than to the profession. Indeed this is its exclusive object, and the author begs here to be distinctly understood, that his design is not to preclude the necessity of calling surgical advice in the cases of which he treats, but to place within the power of the patient or his friends sufficient knowledge to enable them to take such preliminary steps as will facilitate the operation of the surgeon when he is obtained.

In order to carry out fully this design, the author has endeavored to give the directions in the plainest and most simple language—avoiding as far as possible the use of technical terms—and stating the modes of treatment so that they can be understood by persons entirely unacquainted with the science of surgery.

In many instances, repetitions will be found to occur,

especially in that part of the work which relates to the treatment of cases of poisoning. It was thought, however, best to give the treatment in each case, rather than refer from page to page, which might render it difficult in some cases to find the advice sought.

The plates which illustrate the work will be easily understood by those seeking information concerning accidents to which they refer; and it was found impossible without these means to convey the advice in such a form as to be perfectly understood by the unskilful.

If this work shall prove instrumental in saving a single valuable life, or relieving the sufferings of a single member of the community, the author will be fully compensated for the trouble he has been at in preparing it. But he has confidence that its utility will not be confined to so narrow a compass, believing that there never was a truer saying than that of one of the great fathers of surgery, that "for want of timely care, millions have died of medicable wounds."

Providence, R. I., Jan. 20, 1845.

ACCIDENTS.

CHAPTER I.

THE TREATMENT OF SUSPENDED ANIMATION AFTER SEVERE INJURIES. PROSTRATION. COLLAPSE.

Accidents frequently occur on the road or at such a distance from any town or village, that in most cases, much valuable time must elapse before a surgeon can be obtained. My object in this chapter is to give such directions in regard to occurrences of this nature, as will place it within the power of the by-standers or friends to render such assistance as will promote the relief of the patient at the time, and pave the way for the proceedings of the surgeon after his arrival.

A person is thrown violently from a carriage—is injured by a fall from a height—or by some means receives so severe an injury, that although there may be no appearance of fracture or external injury, still so severe a shock is sustained by the system, that it is thrown into a state of collapse or prostration. If at this time you feel for

the pulse at the wrist, it will be found small, feeble, or perhaps will be quite imperceptible. The extremities are cold, with more or less insensibility, and sometimes there will be shivering, vomiting and incoherent muttering.

In nine cases out of ten, the by-standers will say that he ought to be bled, and perhaps some one of them more bold than the others will perform, or attempt to perform the operation. If successful, (which fortunately is not always the case,) the danger which the patient is already in is not only increased, but in the majority of cases such a course places it out of the power of the surgeon to bring on reaction or renewed animation.

In such cases as above described, the nervous system has sustained a severe shock, at the same time that the vascular system has been depressed.

The action of the heart and arteries is so feeble as to be hardly able to carry on the circulation. Nature is striving to overcome the injury already sustained. If then blood be abstracted she has an additional enemy to contend with, and the chances are that she will be forced to yield to their combined attack.

I do not mean to say that blood-letting ought not to be resorted to at any time, or under any circumstances. On the contrary, after reaction has come on, the pulse has come up, the face flushed, and symptoms of inflammation are pres-

ent, then blood should be drawn. But ere this a surgeon has been obtained, and the case will go on under his direction.

There are cases of injuries of the head, in which a surgeon may cautiously abstract blood, but it must be done with great care.

A person so situated should be carefully placed in the horizontal position, with the head and shoulders a little raised. The cravat ought to be removed and the collar of the shirt unbuttoned. He should then, if not far from home, be conveyed thither, care being still taken to maintain him in the position above recommended. If his home be at a great distance he ought at once to be taken to the nearest house, his clothes removed and he should be placed in bed. If there has been any loss of blood it should be noted, and the circumstance, with the probable quantity, made known to the surgeon on his arrival.

As soon as placed in bed, friction should be commenced with hot flannels at the extremities, and cloths of the same material should be wrung out in hot spirits and water, or hot vinegar and placed over the abdomen. Hot poultices should be applied to the feet and calves of the legs.—See Appendix, A.

In making hot applications care must be taken that they are not so hot as to burn the parts to which they are applied; for a troublesome sore

may be caused in this way while the party to whom they are applied is in a state of insensibility. Caution is also necessary in regard to mustard plasters and poultices, not to leave them on such a length of time as to occasion blistering.

As soon as the party is able to swallow, a little cold water may at first be given, and soon after small quantities of brandy and water may be administered, hot or warm.

A stimulating injection will oftentimes prove of great service, and where it can be administered conveniently ought not to be neglected. See Appendix B.

By these means reaction may be brought on, and perhaps by the time the surgeon arrives may be sufficiently active and so far established as to admit of blood-letting, of which however he ought to be the judge.

The prejudice in favor of bleeding immediately after an accident is so strong with the public that some surgeons have been induced against their better judgment to yield to the importunities which assail them, and perform it. Every educated practitioner knows that to draw blood when the party is in a state of collapse is improper and highly prejudicial to his patient, and one who would do so for the purpose of making a *show* or to gratify a few ignorant by-standers is unfit to practice his profession.

CHAPTER II.

OF THE TREATMENT OF SUSPENDED ANIMATION FROM DROWNING, &c. &c. ASPHYXIA.*

As cases of drowning are very frequent and the recovery of the body often so speedy that life might in many instances be restored if the proper means were resorted to in season, it is very important that every member of the community should be made acquainted with the proper mode of proceeding in such cases.

When a body has been recovered from the water, it should be carefully removed at once to the nearest house, to which a messenger has been previously despatched to make the necessary arrangements. Upon the arrival of the body it should be stripped and placed in a bath with the water at the temperature of 100° F., if one can possibly be obtained, if not, it should be placed in a bed, previously warmed, the head and shoulders being a little raised, and friction should be commenced and kept up by means of hot dry flannels. Bags of heated salt or sand, (using the precaution of not having them so hot as to burn the parts to which they are applied,) should be

*_Asphyxia_ is taken from the Greek, and means a want of pulse, and by it physicians understand suspended animation.

placed by the sides, and mustard poultices should be applied to the feet. See Appendix A.

At the same time artificial respiration should be kept up. The best mode is, by inflating the lungs from the breath of another person, or by means of a pair of bellows, where a proper instrument for the purpose cannot be obtained. It is very rare, of course, that such an instrument can be had, particularly in the country and small towns, where there is no Hospital.

The pipe of a pair of bellows should be introduced into one nostril, and the other, as well as the mouth, should be closed. The bellows should then be gently put in motion until the lungs are inflated, which may be known by the breast's being fuller than when the operation was commenced.

Another means which, in addition to the inflation of the lungs, ought to be resorted to, is to produce a gentle motion of the chest in imitation of the act of respiration.

This may be done by pressure with the hands over the region of the lungs, or a piece of stout cotton sheeting may be passed round the chest, the ends of which are to be torn in strips and made to pass each other, by which means a person on each side, having hold of these ends, may produce a contraction and dilation of the chest, by alternately tightening and loosening the bandage.

These means ought to be kept up for a long time, as respiration has been known to be established several hours after the body has been recovered from the water, and when at first there was little or no prospect of success. I have seen a case reported where eight hours elapsed after the recovery of the body before respiration was established, and although consciousness did not return until two days following, complete recovery ensued.

Electricity or galvanism will oftentimes have a good effect, if applied to the back of the neck, and to the chest, by exciting the respiratory muscles into action.

As soon as the patient is able to swallow, a little cordial or warm brandy and water should be cautiously administered.

The vulgar, inhuman, and unphilosophical practice of rolling a party laboring under asphyxia, from drowning, on a barrel, or of suspending him by the feet, needs only to be mentioned to be condemned.

Although recovery can rarely be expected to take place after an immersion of five or six minutes, yet cases are reported in the medical journals where it has ensued after the lapse of twenty.

The above directions should be followed without the least delay. There should be no waiting for a doctor before they are commenced, as every

moment lost puts the life of the patient in greater jeopardy.

I do not mean to say, nor do I wish to be understood, that the presence of a doctor is unnecessary, but on the contrary he should be obtained as soon as possible, and upon his arrival the case ought to be conducted under his direction.

Asphyxia from hanging or strangling.

Persons laboring under asphyxia from this cause should be treated in the following manner. Great care should be taken in cutting down the body, which should be done with as little force or violence as possible. The knot should be *untied* from the neck, if practicable, instead of being cut, as in the latter act too much force is necessary.

If very cold, the body should be warmed as directed in asphyxia from drowning ;* but this is not usually the case, and the application of warmth is not so essential as in those cases. What is most to be relied on is artificial respiration, for which directions have already been given in another part of this chapter; and next, bleeding from the foot or jugular vein, and therefore a surgeon should be obtained as soon as possible.

It is the vulgar impression in many parts of the country that the law will not allow the cutting

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*Vide ante p. 9.

down of a body found hanging unless the coroner be present. It is therefore, perhaps, proper for me to say that no such delay is necessary, but that no time should be lost in so doing.

Asphyxia from the vapor of charcoal.

This is generally, in this country, the result of accident from ignorance. A party retires to bed or shuts himself up in a room with a pan of ignited charcoal, which is placed there for the purpose of warming the air of the room; and if not accidentally discovered by some one, death is, in most cases, the consequence.*

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* The following cases are reported in the Edinburgh Medical and Surgical Journal, October 9, 1839:

The church of Downham, Norfolk, was heated by two of Joyce's patent stoves. For two Sundays they were used without any injurious effects, but as they heated the church insufficiently, care was taken to make the stoves consume the charcoal as completely as possible. In the middle of the morning service, a lady feeling somewhat oppressed, requested that a window might be opened. Soon after some charity children were taken out on account of their becoming affected. Mrs. O. was soon afterwards seized with a headache and vertigo. Another lady was seized with similar symptoms, which she said she experienced on the two preceding Sundays. Immediately afterward, Mrs. B. was carried out of church quite helpless; and another young lady followed her. Miss W. experienced a sense of constriction across the throat and round the head. She endeavored to leave the church, but found herself unable to maintain the erect position; she was therefore carried out, and was confined to her bed the next day, with an

In France, it is frequently resorted to as a means of committing suicide, but I believe this is rarely the case in this country.*

A party may be found laboring under partial, or complete asphyxia from this cause, and should be treated in the following manner.

If not already done, the clothes should be removed from the body as speedily as possible, which ought to be placed in the open air, laid upon its back, with the head and shoulders a little elevated.

The face and chest should be sponged, or sprinkled with cold water, or cold vinegar and water, a little of which may be administered, if the patient is able to swallow.

Friction, by means of a rough towel or flesh brush, ought to be kept up. The lungs should be inflated by means of the bellows, and artificial respiration as heretofore directed in cases of drowning, should be resorted to.

All these measures must be resorted to promptly, and persevered in for a long while—say, for several hours. And although the appearance of

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intense headache. The clergyman, in consequence of these accidents, abruptly concluded the service. About seventy persons were more or less affected.

* According to the Police Registers of 1834-5, there were in the city of Paris 360 cases of asphyxia from this cause.—*Med. Examiner*, vol iv. p. 491.

the patient may be discouraging in the extreme, and death apparently have taken place, yet instances have been where recovery has ensued even after the lapse of eight or ten hours, notwithstanding all the symptoms of the patient seemed at first to render his restoration impossible.

Asphyxia from inhaling carbonic acid gas.

This is the same form of asphyxia as that last described, and is caused by the inhalation of carbonic acid gas which accumulates at the bottom of old wells, coal pits, brewers' vats, and mines of different kinds, and is commonly known by the name of *choke damp.*

It is this gas which proves destructive to persons in a confined room with burning charcoal, (described in the preceeding section of this chapter.) It is wholly incapable of supporting respiration or combustion.

It may be detected in a well or pit by letting down a lighted candle, which if the gas be present will be immediately extinguished. This ought always to be done before descending into one of these cavities, as lives may freqently be saved by so doing.

It is not always an easy matter to recover a body from the bottom of an old well or mine, and the effort often endangers the life of the party who attempts it. This, however, should be

done as speedily as possible, and the mode of treatment recommended above, where the gas has been inhaled from charcoal, should be pursued with the same energy and perseverance as therein urged.

CHAPTER III.

MEANS OF TEMPORARILY ARRESTING THE FLOW OF BLOOD. HÆMORRHAGE.*

THERE are two sets of blood vessels in the human body; the one composed of the arteries, which carry the blood from the heart to every part of the body; and the other of the veins, which returns the same blood, after the oxygen has been exhausted from it, back to the heart, to be brought in contact with the air in the lungs, by which means it is renewed with *oxygen* and is again fit for use. This is termed the circulation of the blood.

The blood in the arteries is of a bright red or florid color, and when one of these vessels is wounded, particularly if it be severed by a sharp instrument, and if the vessel be of much size, the blood is thrown from it in jets, or as water is thrown from a forcing engine.

Fortunately, arteries forcibly torn or lacerated are not apt to throw out blood, owing as some suppose to the vessel's being paralysed to a certain extent by the shock, so that it does not contract

*The word hæmorrhage is taken from the Greek and is understood by surgeons to mean a discharge of blood from any of the blood vessels.

to force along the current of blood, which consequently coagulates and fills up the orifice of the wounded artery. There are other theories on this subject, but whatever the cause may be, it is sufficient to assert in this place that such is the fact.

I have seen a man after he had been brought thirty or forty miles, and consequently several hours had elapsed since the accident, whose thigh had been torn off by machinery. The main artery was projecting from the wound, no ligature had been cast around it, nor had any means whatever been used to prevent the flow of blood, yet although he died from the shock sustained by the system, he lost no more blood than is frequently taken at a bleeding from the arm.

But it is far different with one of these vessels when punctured or cut across by a sharp instrument, as is often the case by the careless use of edged tools, or by unforseen accidents.

In such a case the utmost promptness and self-possession is required on the part of the by-standers.

It should be remembered that the blood which is flowing from the wound, if in any quantity and of a bright red colour, is arterial; that the arteries carry the blood from the heart to the different parts of the body. If, therefore, you make compression between the wound and the heart,

particularly over the main artery of the limb, you will effectually check the bleeding for the time until a surgeon can be obtained.

Suppose a wound in the foot, leg, or thigh, which bleeds profusely should accidentally occur to some one in your presence. If assistance is not rendered at once, a valuable life may be lost.

You should at once strip the limb and with three or four fingers of one or both hands, make forcible compression on the upper and inner part of the thigh, over the course of the main or femoral artery. (See plate 1.) You should then request some person to quickly twist a handkerchief corner-wise and tie a hard knot mid way between the two ends. This knot should then be placed over the artery just above or below where the fingers are making compression, and the two ends carried round the limb and loosely but firmly tied. (See Plate 2, B.) A stick five or six inches long should then be passed under the handkerchief, which should be twisted by it until the knot has made sufficient compression on the artery to allow the fingers previously kept there, to be removed, which may then be done, and the stick made fast and carefully watched until the surgeon arrives, who will proceed to take up the bleeding vessel or vessels, or pursue such a course as he may think proper for the welfare of the patient.

If the wound in the thigh should be high up, then compression should be made on the artery where it passes over the bone at the groin. It can easily be found by its pulsation. The compression should be made at this place with a key or smooth piece of wood, round either of which a piece of linen or cotton bandage ought to be wound, to render it soft and less liable to slip. (See plate 2, A.)

If the wound should occur in the hand, forearm, or arm, the same means may be pursued, viz: compression between the wound and the heart. The course of the brachial or main artery of the arm, with the hand making compression, may be seen in Plate 3, A.

When the wound is so high on the arm that the artery cannot be compressed above it, or when it is in the arm-pit, compression should then be made on the artery with the thumb or a key, where it passes over the first rib, behind the collar bone. (See Plate 3, B.)

The flow of blood may be arrested in either extremity by the handkerchief, without the knot in its middle, being placed just above the wound —but it will have to be, when used in this way, twisted much tighter, and will consequently cause the patient much more pain.

The manner which I first described is much to be preferred, and I think, after an examination of

the accompanying plates, there can be no difficulty in finding the course of the artery on the limb.

The wound ought not to be stuffed with rags, nor should any irritating application whatever be made to it. If any application at all is made, it should be nothing more than a piece of cotton or linen, once or twice doubled and wet with cold water.

Sometimes the orifice of the wounded vessel may be visible. In such a case, compression over it with the ball of the thumb, will temporarily arrest the flow of blood until the arrival of the surgeon. Should he reside at a great distance, or should there from any reason be a prospect of much delay, an attempt may be made to put a ligature round it, which may be done in the following manner: Take a large needle, and placing the end in which the eye is, into a piece of wood or cork, so that it will answer for a handle, hold the sharp end in the flame of a lamp, until it can be bent into a hook; then sponge away the blood, so as to render the orifice of the bleeding artery perfectly visible, and passing the hook through it, draw it gently out; an assistant must then tie it with a strong silk or linen thread, which has been previously waxed; care must be taken to tie such a knot as will not slip. The surgeon can easily remove it, if upon his arrival he should think advisable to do so. If the bleeding vessel

be small, and the orifice be visible, the hæmorrhage from it may be stopped by seizing it with a pair of forceps or pincers, and twisting it, thereby lacerating or tearing its ends, in which state, as has been before stated, an artery does not bleed.

Profuse bleeding sometimes, and in fact almost always, follows wounds of the scalp and face. Such can usually be arrested for the time by compresses made of folded cotton or linen, wet in cold water and bound or held firmly over the wound.

There is seldom much difficulty in arresting the bleeding from a wounded vein. It is to be remembered that the veins return the blood from the different parts of the body to the heart, and that unlike the arteries, the blood contained in them is of a dark color.

Now compression between the orifice of a wounded vein and the heart, would of course increase the bleeding, unless the compression was so great as to intercept the entire circulation of the limb by compressing the artery at the same time, which would be quite unnecessary.

It may not perhaps be understood, why the obstruction of the main *artery* of a limb will stop the bleeding from a vein. It is simply this. If the artery be obstructed there is no blood carried to the limb, and consequently none to be returned by the veins, which are therefore empty.

It is rarely necessary to do any thing more than to remove any obstruction there may be to the return of blood, as a tight sleeve or bandage, and apply a small compress and bandage to the wound. As these accidents generally occur from the disarrangement of the dressings after the operation of blood-letting, the above directions in regard to them is all that is necessary.

In a large wound, attention to the arteries is alone necessary; for, as I have above stated, by their compression the blood is cut off from the part, and none is furnished to be returned by the veins, which consequently do not bleed.

Sometimes an alarming loss of blood takes place, particularly among infants, from leech-bites. Such can be readily arrested, by passing a fine needle through the skin at the base of the wound

and tying a thread firmly around it, in the form of a figure eight, as in the accompanying cut.

Bleeding from this cause may also be arrested by touching the bites with a piece of lunar caustic, cut to a point at its end, or by touching them with the end of a red-hot knitting needle. Both of these methods are more painful to the patient, and usually less effectual than the needle and thread.

CHAPTER IV.

MANAGEMENT OF WOUNDS.

It is unnecessary for me to say much about this description of injury, as they require little or no treatment before the arrival of the surgeon, unless there should be bleeding from them, in which case the directions given in the last chapter will be quite sufficient.

It will be well perhaps to say a word or two against the common practice of applying irritating substances, such as *balsams* and *salves* in such cases. They only aggravate the wound, cause more pain, and prevent its healing, by what surgeons call the first intention—that is, by the immediate union of its edges.

If there be a simple clean cut, draw the edges accurately together with strips of sticking plaster, and cover the whole with a bandage of cotton or linen cloth.

If it be a ragged, dirty, or what is termed a lacerated wound, apply cold water, and let it be seen by a surgeon as soon as possible.

Poisoned Wounds.

This is the class of wounds caused by the bite of rabid dogs, serpents, and insects.

When an accident of this kind takes place the part should be speedily exposed, and if the wound be on either of the extremities, a ligature should be placed around the limb between the wound and the heart, drawn tightly and tied. The wound should be sucked by the person himself, or some one present, taking care however, that there be no sores or abrasions in the mouth of the person by whom it is done.

What answers still better, is the application to the part of a cupping glass. This, if near a house, can always be done in the following manner:— Take a wine-glass, or tumbler, and having tied a piece of rag on to the end of a stick, soak it in spirits of wine or alcohol, and light it. With the flame exhaust the air from the glass, and clap it directly over the wound. This will draw the blood out of the wound, and render the poison less likely to enter into the circulation. If pure alcohol cannot be obtained, cologne water, rum, brandy, or any kind of ardent spirit, will answer.

As soon as possible, the wound should be cut out; but this ought not to be attempted by an unprofessional person, or by any one unacquainted with the anatomy of the part. The wound should be touched in every part by caustic of some sort, or what is better, seared over with hot iron.

It is hardly necessary for me to say, that a surgeon should be consulted without delay.

CHAPTER V.

MANAGEMENT OF FRACTURES AND DISLOCATIONS.

THERE is probably no class of surgical cases which are so open to quackery, as fractures and dislocations, and to its influence much mischief and deformity is to be attributed. The idea of a natural bone-setter is as absurd as that of a natural watch-maker, or a natural machinist.

That some men are naturally more ingenious than others, must be admitted, and that such will excel in whatever mechanical pursuit they may devote their time and attention to, is likewise as certain. It requires mechanical ingenuity, with a knowledge of anatomy, to make a scientific bone-setter.

But the want of a knowledge of anatomy, is the boast of the natural bone-setter.

No man, ignorant of the anatomy of the joints in the human frame, can attempt to replace the bones and re-establish the motions of one or any of these joints when dislocated, without incurring the greatest risk of doing still further injury, and perhaps causing irremediable deformity and lameness, if not inflammation and death.

But there are still another set of quacks, who find

themselves at home with the bones, and these, I am sorry to say, are ranked among the members of the profession. One of this class, when sent for to a suspected fracture or dislocation, never fails to detect one, whether it be there or not, and thus, by deceiving the patient who has placed confidence in him, swindles him out of perhaps a large bill, before he pronounces him to be sufficiently recovered to attend to his ordinary duties. I am well satisfied, that if there was less quackery among men who claim to belong to the profession, there would be much less practised out of it.

I remember when a student, to have visited a young man with one of these characters. He pronounced the collar-bone broken, (the *patient* had previously expressed the opinion that such was the case,) and accordingly, with a great deal of show and importance, proceeded to *adjust* the parts and apply bandages with his usual *neatness*. Among other things, I remember his applying a book with a stiff leather cover and sharp edges, under the shoulder in the arm-pit, in place of a soft stuffed pad, which is usually placed in this situation, in injuries of this description.

However, the arm was done up, and he was told that it would be some time before it would be fit for use.

By some means, certainly not from the accuracy and skill with which they were applied, but

fortunately for the patient, the dressings became loose that night, and came off. There was little or no pain in the arm or shoulder, and the next morning I saw him taking down the heavy window boards of his shop, which he was in the act of opening, and throwing both arms about as though nothing had ever happened to them.

In cases of suspected fracture or dislocation, if in the lower extremity, the person should be carefully placed upon a bed or sofa, if he be at home, the parts placed in the most comfortable position, and a surgeon at once sent for.

In many cases, the injury is easily detected, and in such event the messenger should inform the surgeon as to its nature, in order that he may provide himself before leaving home with a proper apparatus for treating the case.

The by-standers ought not to handle the affected part any more than is absolutely necessary to place it in the most comfortable position, and above all, ought they to avoid making any attempt to set the bones, as much injury may be caused by so doing.

Cloths wet with spirits and water, either cold or warm, as may be most agreeable to the patient, if there be no external wound, may be applied to the part; but if an external wound should be present, then water without the spirits should be used.

Such an accident may happen away from home, and even at a distance from any house. In such a case, a litter should be constructed as speedily as possible, the patient laid upon it, and conveyed to his home. If near a house, a litter can be easily constructed, by taking two boards sufficiently wide and long, and nailing them to two narrow cross-pieces, which will answer for handles. The boards may be covered with a folded blanket, or counterpane, or a narrow mattrass may be placed upon them. A light settee, upon which two or three pillows are placed, will answer the purpose very well.

If the injury be to the upper extremity, the part should be placed and supported in the most comfortable attitude.

If the patient be insensible, or in a state of collapse, he must be managed as directed in Chapter I.

CHAPTER VI.

BURNS AND SCALDS.

Accidents of this class are among the most distressing with which we are brought in contact, occurring as they most frequently do among children and infants.

These accidents may be caused in various ways, as by the clothes taking fire, the explosion of gunpowder, or by being brought in contact with hot water or steam.

Burns which cover a large surface, although they may be superficial, are more dangerous than those covering a small extent, even where the latter are deeper and of a more frightful appearance. The former is more apt to be the case with scalds.

If the burn or scald be of much extent, a great shock is generally produced to the system, causing chills, vomiting, and sometimes convulsions or fatal collapse.

The most shocking deformity very often follows burns and scalds, such as the growing together or contraction of the fingers. The arm may grow to the side, or may be drawn up at the elbow or wrist. Severe and extensive contractions of the neck and other parts may take place.

The chin may be drawn down upon the chest or shoulder. But thanks to modern surgery, these deformities can now in most instances be cured by an operation. New noses and eyelids can be made, and the deformity must be extensive indeed, where improvement cannot be effected.

When an accident of this kind occurs, do not hesitate, but send at once for a surgeon, and in the mean time make some one of the following applications.

If the burn be very extensive, apply thin cloths of linen or cotton, wet in equal parts of *lime water* and *linseed* or *olive oil*, and endeavor as far as possible to prevent the atmospheric air from coming in contact with the wound.

If there be much suffering, you may administer to an adult from twenty-five to sixty drops of laudanum, according to the pain. If the patient be a child, from fifteen drops to a teaspoonful of *paregoric* may be administered. Where there is much prostration, a little hot wine, or brandy and water, may be found necessary to bring on reaction.

A solution of Gum Arabic in water has been highly recommended in burns. It should be applied all over the affected part, and several coats should be put on one after the other.

The best application with which I am acquainted, (and of this I speak from experience,)

is soap. It may be applied in the following way, and has the advantage of always being at hand.

Take a common shaving box, and having made a thick lather with the brush, paint the part over with a thick coat. As soon as this is dry, apply another, and continue the applications until several have been put on. I have seen burns of considerable extent cured by this means, and I have been in the habit for some time past of using it where such accidents have occurred in my practice.

CHAPTER VII.

FROST BITE.

The hands, feet, ears, &c., are very subject, in cold latitudes, to frost bite; and this may often occur particularly to the ears and nose, without the patient, at the moment, being aware of it.

The part affected, at first assumes a dull red color, which gradually gives place to a pale waxy appearance, and becomes quite insensible. If not properly treated at this time, mortification may take place and the patient be subjected to the loss of a member.

The first thing to be done in such cases is, to re-establish the circulation in the part. This may be accomplished by rubbing it with *snow*, or when not to be obtained, cold water; but the snow is always to be preferred. The fire should be avoided; and it will be better, for a time, for the patient to be kept in a cold room where there is no fire at all, or where the temperature is moderate.

A person may be taken up in the road benumbed with the cold, and be almost or quite insensible. Such a person should be taken into a *cold* room, his clothes removed, and friction commenced and continued for some time, with snow.

When warmth begins to be restored, he should be rubbed with a dry flannel, and the friction continued until re-action takes place.

It will be well, as soon as the patient is sufficiently revived to be able to swallow, to administer a little warm drink, as weak wine and water, or ginger tea.

The patient should now be placed in a *cold* bed, and a stimulating injection administered.—See Appendix B.

The after treatment will of course be conducted by a surgeon.

As surgeon of the Marine Hospital, I have had frequent opportunities of seeing such cases, which have occurred to seamen while on our coast in the winter season, and am convinced that many limbs and members might be saved, were a proper course pursued upon the first occurrence of the accident.

CHAPTER VIII.

EXTRANEOUS BODIES IN THE EAR, NOSE, THROAT, &c.

Peas, beans, tamarind stones, and numerous other extraneous bodies, may be introduced into the ear by children, and if not soon extracted, cause much pain, swelling, and perhaps a formation of matter, which may terminate in total loss of hearing. If within sight, they may generally be extracted with a small pair of forceps or tweezers; or a double hair pin may be bent into a blunt hook at its bent end so as to form a kind of scoop, and passed behind the substance, which may in this way be extracted. A stream of warm water thrown in by means of a small syringe, may sometimes prove successful, and in its return, wash out, if it be small, the substance which has been introduced.

Should the extraneous body be a bean, a pea, or any of the grains, water ought not to be used, as the moisture would cause them to swell, and it would afterward be found much more difficult, if possible, to extract them.

Where much difficulty is met with, the substance ought not to be picked at too long, nor ought an unprofessional person to attempt for a long time its extraction, for by so doing, not only

is inflammation more likely to be excited, but more difficulty will be experienced by the surgeon, in his after attempts to extract it.

Under such circumstances, a surgeon ought to be obtained without delay, who, by his familiarity with the anatomy of the part, and by the use of properly contrived instruments, will usually succeed, to the great relief of the patient. I once succeeded in removing an eyelet, which a little girl had introduced into her ear, by means of a common probe, bent at its end into a hook, which was passed through the hole in the eyelet and drawn out with but little difficulty.

Worms and insects sometimes find their way into the ear, producing severe pain and causing much terror to the patient.

These can usually be driven out by the introduction of a little warm olive, or almond oil.*

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* The following case, in illustration, is related by Dr. Gibson, of Philadelphia.

"Several years ago, a poor woman, the wife of a skin-dresser, brought her child to me, stating that a few days before, the child had been playing with its companions on a pile of sheep's wool that lay in the yard; and that in a few minutes after, he complained of uneasiness in the ear, which was soon followed by violent ear-ache, and subsequently by suppuration, (formation of matter.) To relieve the pain and check the discharge, the mother poured sweet oil into the ear, and in a few moments, to her great surprise and horror, observed a worm make its appearance near the surface, but upon attempting to seize it, it immediately retired beyond her sight and reach.

Extraneous bodies in the nostrils.

Foreign bodies are sometimes introduced up the nostrils by children, causing much irritation and sometimes inflammation, if allowed to remain. They should therefore be removed as soon as possible, either by the orifice through which they were introduced, or by pushing them back into the throat. Care should be taken not to injure the bones nor the lining membrane of the nostrils; and if the substance be not easily extracted, a surgeon should be obtained at once.

Extraneous bodies in the throat.

These accidents are of very frequent, always alarming, and sometimes of fatal occurrence.

I do not know of any accident more alarm-

Scarcely giving credit to the woman's statement, I repeated the experiment with the oil, and in a few seconds the worm appeared, its approach being preceded by several bubbles of air passing through the oil. I tried instantly to secure it with a pair of forceps, but with great dexterity it eluded the grasp, and made its escape. Several times the attempt was repeated, and at last with success. When placed on the table, the animal was found three quarters of an inch long, about as thick as a common piece of twine, black about the head, and white on the rest of its body. It was extremely active, and appeared very tenacious of life. The woman immediately recognized it as a species of worm very commonly met with amongst new-shorn wool, and had no doubt that it had found its way into the boy's ear at the time he was playing on the pile.

ing, and by which the generality of people are more liable to be thrown off their guard, than that produced by the act of choking. It is an accident which requires immediate relief, or a life may be lost. It is therefore very desirable that every one should know what to do in such a case.

The *larynx* and *pharynx* are situated at the back part of the mouth. They are two cylindrical tubes, the former of which is the organ of voice, and leads to the lungs, by means of the trachea, or windpipe, which is a continuation of it.

The pharynx is situated behind the larynx, and terminates in the œsophagus, or gullet, which leads to the stomach, and is the passage through which food is conveyed to this organ.

The larynx has at its top a sort of valve, which closes when any thing which is intended to pass into the pharynx is in danger of passing into it. Notwithstanding, substances do sometimes get by the valve, and produce the distressing symptoms which every person must have witnessed. The same symptoms may be produced by the detention of a large substance, as a piece of beef or gristle, in the gullet, by its pressure on the windpipe.

It is not necessary to ascertain which passage the foreign body is in, when this accident takes

place, for the immediate treatment ought to be the same. A bystander should place one hand flat on the front of the chest of the sufferer, and with the the other give two or three smart blows upon the back, allowing a few seconds to intervene between them. This will generally succeed, and cause the substance to be violently ejected.

If the sufferer be a child it should be taken between the knees of the operator who should be seated on a chair, and the same proceedings practised.

If not successful at once a surgeon ought to be obtained as soon as possible, who, if in time, may be enabled to save the life of the patient.

Foreign bodies lodged in the œsophagus are not usually so dangerous as those in the wind-pipe.—If a surgeon be near he can push a body of considerable size through the gullet into the stomach by means of an instrument called a probang, which is a long slender piece of whale bone with a round piece of sponge attached to the end, which is introduced into the passage. But to extract a body from the wind-pipe it is often necessary to make an incision from without, through which the extraneous substance may be evacuated.

Extraneous bodies in the eye.

Small particles of dirt may become lodged in

the eye and produce much inconvenience and irritation, which is often increased by bungling and harsh attempts to remove them, which ought to be done in the following way:

The party should be placed before a strong light, the lids held open with one hand or by an assistant, and the particles brushed away with the corner of a fine cambric or silk handkerchief; but sometimes the substance is concealed under the upper lid, and it may then be exposed by turning back the lid in the following manner:

Take a knitting needle or small slender piece of stick which is perfectly smooth and place it over the upper lid close up to, and just under the edge of the orbit; then holding it firmly, seize the lashes by the fingers of the disengaged hand and gently turn the lid back over the stick.

You can then examine the inner side of it and remove any substance that may have been there concealed.

Eye-stones ought never to be placed in the eye, as they often cause more pain and irritation than the evil which they are intended to remedy.

Passengers in railroad cars often suffer much annoyance and pain from the introduction of sparks and cinders into the eye. I have often had occasion to remove these substances some time after their introduction, when it might have been done at the moment of the accident had any

of the fellow passengers been in possession of the above information.

Machinists, cutlers, and other artisans, are liable to have small, sharp pieces of steel or iron fly into the eye while at work. These can usually be removed (if the party attempting it have a steady hand) with the point of a fine pen-knife, or by a needle. Too many trials ought not to be made, if unsuccessful, as much inflammation may be induced by so doing; but a surgeon, in such cases, ought to be consulted as soon as possible.

POISONS AND THEIR ANTIDOTES.

CHAPTER IX.

GENERAL REMARKS ON POISONING.

Poisoning, either from accident or design, is of such frequency and danger, that it appears to me to be of the greatest importance that every person should be made acquainted with the proper mode of proceeding in such cases, in order that they may, so far as is within their power, with the means present, render immediate assistance.

We see almost daily in the public prints, accounts of accidents of this kind. Sometimes whole families are attacked, immediately after eating, with violent symptoms, and not unfrequently the cause is at once ascertained; but from ignorance of the proper mode of treatment, much time is lost, and death is often the consequence.

There are many medicines used in practice, which, if given in proper doses, are not only harmless, but capable of producing the most beneficial results, but which, if taken in over-doses,

will produce most violent poisoning, and even death.

I shall divide the poisons into two classes, viz : Mineral (which will include the *acids*) and Vegetable ; and shall give, as briefly and plainly as possible, such information in regard to their antidotes and mode of treatment, as I hope may be for the benefit of those suffering from their effects.

It is not my intention to describe the symptoms produced by the different poisons, but merely to point out the proper remedies to be given where the particular article swallowed is known, and this, only in order that no time may be lost previous to the arrival of a medical man, who must in suspected cases, where no clue is to be had, judge by the symptoms as to the nature of the poison, if any have been taken.

In speaking of the different poisons, it will be often necessary to repeat directions which have already been given under this general head ; but a person looking, in the hurry of the moment, for the antidote and mode of treatment for a particular poison, might never have read the introduction, and at the time might omit to look at it, and thereby neglect some important point in the management of the case.

The first thing to be done, where it is ascertained that a poison has been swallowed, is to

evacuate the stomach ; and unless vomiting takes place spontaneously, emetics of the sulphate of zinc, (white vitriol,) or tartar emetic, (the wine of antimony, which is usually to be found in most houses, may be used where the tartar emetic in powder is not at hand) are to be preferred, and may be given dissolved in a little warm water. The dose of the sulphate of zinc, in such cases, is from fifteen to twenty grains, which I have ascertained to be as much as can be heaped on a cent. Of the tartar emetic, the dose is from three to four grains, which may be given in the following manner : As much as will cover (not heaping) a ten cent piece, will be found to weigh from six to eight grains ; this may be dissolved in a tumbler full of warm water, and the one half given at once. The balance may be given in twenty or thirty minutes, if vomiting be not induced within that time.

When vomiting has commenced, it should be aided by large and frequent draughts of the following drinks, in which some of the antidote may also be administered :

Flax-seed tea, gum-water, slippery-elm tea, barley water, milk and water, sugar and water, or any thing of a mucilaginous or diluent character.

Where the antidote is to be obtained, no time should be lost in its administration. A messenger should be at once despatched for a surgeon,

and should be instructed to inform him as to the nature of the case—if known, what poison has been taken—if not, what is suspected. This should be done in order that he may bring a stomach pump, and such antidotes as he may think proper. The stomach pump is not only in most cases indispensable to evacuate the stomach, but frequently useful when the patient cannot or will not swallow the drinks and medicines given.

If any of the substance by which the poisoning has been caused, is left in the phial or cup, it, as well as the substance evacuated from the stomach, should be carefully saved, that it may undergo a chemical examination.

As more deaths occur from delay in applying the proper remedies, than from the quantity of poison swallowed, no time should be lost.

Poisons have sometimes been conveyed through the skin, by applications made to it for the purpose of causing eruptions, and by plasters and remedies for cancer. These are, for the most part, composed of some preparation of arsenic or of corrosive sublimate.

CHAPTER X.

MINERAL POISONS, INCLUDING ALKALIES AND ALKALINE EARTHS.

AMMONIA.—The *water of ammonia*, when taken into the stomach in an over dose and in an undiluted state, acts as a violent corrosive poison. This medicine is not very liable to be taken by an adult, as its very pungent smell exposes it as soon as brought near the nose; but it may, and sometimes has, been administered to children, by accident. The volatile liniment, which is a composition of olive oil and water of ammonia, may also be given by mistake.

The best and most effectual antidote, is vinegar, which can always be obtained at once, and should be administered in water, without delay. It neutralizes the ammonia and renders it inert. Emetics should not be used in these cases.

ANTIMONY.—The *wine of antimony*, and *tartar emetic*, are the preparations of this mineral with which poisoning is usually produced, but any of its preparations may produce the same effects, if taken in over doses.

Vomiting is one of the most distressing symptoms produced by this poison, and should

be aided and rendered more easy by the administration of warm diluent and mucilaginous drinks, such as sugar and water, flax-seed or slippery elm teas, &c. &c. The stomach-pump should be used as soon as possible. If the vomiting be excessive, and accompanied by retching, the syrup of poppies should be given in teaspoonful doses, every twenty minutes or half hour, until relief is experienced. Where the syrup of poppies is not to be obtained, laudanum, in doses of twenty-five drops, may be given every twenty minutes, until four or five doses have been taken, or the vomiting checked.

The antidotes are *nut-galls*, *oak-bark*, and the *Peruvian bark*, which may be administered in infusion. Half a dozen nut-galls, or an ounce of Peruvian bark, previously bruised, may be boiled for ten or fifteen minutes, in two quarts of water, and the infusion administered frequently in large draughts.

Arsenic.—Any of the preparations of arsenic may be taken, either intentionally for the purpose of committing suicide,—by accident,—or they may be administered with criminal intent. Vomiting should be induced and kept up by large draughts of mucilaginous drinks. Such as flax-seed tea, gum water, &c , and the stomach pump used as soon as possible.

The antidote is the *hydrated peroxide of iron*, discovered to be such in 1834, by Doct. Bunsen, of Gottingen. Until then no antidote was known to this virulent poison, and the only means of relief from it was by its speedy evacuation from the stomach.

It should be kept constantly on hand at the apothecaries, but this, unfortunately, is not the case. For the benefit of those residing in this city and immediate vicinity, I will mention that it can at all times be obtained of Messrs. Chapin & Thurber, in Westminster street. It may be given in any quantity, being perfectly harmless.

Baryta.—When taken in poisonous doses, as it may be by accident, a weak solution of epsom or glauber salts, or sugar and water, pleasantly acidulated with sulphuric acid, which are its antidotes, should be administered without delay. This should be followed immediately by an emetic, and large draughts of gum-water, slippery elm tea, or any mucilaginous or diluent drink that may be most convenient.

Bismuth.—Poisoning may be produced by that preparation of *bismuth* known as *toilet powder*. The first object to be attained is the evacuation of the poison from the stomach, and for this purpose vomiting should be induced by irritating the

back of the throat with a feather or the finger, and the copious administration of milk, which is an antidote. When these means do not succeed in causing vomiting, an emetic of the sulphate of zinc (white vitriol) of which as much as can be held on a cent, in powder, may be given dissolved in warm water, and repeated in half an hour if the desired effect be not produced within that time. If the zinc be not at hand, tartar emetic may be given, and of this what will cover a ten cent piece may be dissolved in a tumbler full of warm water, and the half given at once—the balance to be taken in half an hour if vomiting be not induced.

After vomiting has commenced it should be aided by copious draughts of milk and water, or flax-seed, or slippery-elm tea.

The stomach pump ought to be used as soon as possible.

Copper.—Any of the preparations of copper may be swallowed by accident, and poisoning be the consequence; but the most common cause of poisoning from this metal is through the careless use of cooking utensils made from it, on which the acetate of copper (verdigris) is allowed to form.

Vomiting should be induced by tickling the back of the throat with a feather or the finger,

and promoted by large and frequent draughts of diluent drinks, such as gum-water, flax-seed tea, and what is still better, and in fact is said to be an antidote, is the white of eggs, diffused in water, taken copiously and repeated frequently. The stomach pump should on no account be neglected if the application of one can possibly be obtained.

The antidote is the carbonate of soda, which should be administered without delay. Iron filings and the ferrocyanate of potassium are said to be antidotes to the poisonous effects of copper, and should therefore be given.

GOLD.—All the preparations of gold act when taken into the stomach in over doses, as corrosive poisons.

Vomiting should be induced and promoted, by copious draughts of warm sugar and water, gum water, or flax-seed tea. The stomach pump, as soon as possible, ought to be used.

The antidote is the sulphate of iron (green vitriol.)

IODINE.—Iodine, or any of its preparations, will produce violent symptoms, if taken in over doses. The best mode of treatment is to induce vomiting, and at the same time administer starch, in water. This acts as a diluent, and by some is

thought to be an antidote. It should be taken very freely. There is no certain antidote for iodine.

LEAD.—Metallic lead, when swallowed, produces no bad effect; but water which passes through lead pipes, though the effect is slow, will after a time produce poisonous results. The acetate (sugar) of lead is the preparation of this metal which is most liable to be taken accidentally in poisonous doses.

The antidote is diluted sulphuric acid. Where this acid is not to be obtained, either the sulphate of magnesia, (epsom salts,) or the sulphate of soda, (Glauber's salt,) will answer every purpose. They should be given in a weak solution.

LIME.—Poisoning may be caused by the accidental administration of lime. The antidote is vinegar, or any of the vegetable acids, which may be given in water. Warm water and mucilaginous drinks should be given in large quantities, to produce vomiting, but emetics ought not to be given.

MERCURY—The preparation of mercury with which poisoning is more commonly produced than any other, is *corrosive sublimate.* But any

of its preparations will produce the most violent symptoms, if taken in over doses.

The mode of treatment to be pursued when this poison has been swallowed, is as follows: The whites of a dozen eggs should be beaten up in two quarts of cold water, and a tumbler full given every two minutes, to induce vomiting.*

The corrosive sublimate is decomposed by the albumen, which changes it to calomel; this, acting as a purgative, carries itself off. The poison is also reduced to calomel, by a mixture of soap and the gluten of wheat flour.† When, therefore, the whites of eggs are not to be obtained, soap and water should be mixed with wheat flour and given in copious draughts, and the stomach pump introduced as soon as possible. Emetics, or irritating substances, ought not to be given.

It has recently been stated that the *hydrated proto-sulphuret of iron*, is a certain antidote to *corrosive sublimate*. It ought, therefore, when possible, to be obtained, and administered without delay.

NITRE, (*Saltpetre.*)—Nitre, when given in over doses, produces violent poisonous symptoms. Vomiting should be induced by large draughts of flax-seed tea, gum-water, slippery-elm tea, or any

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* Orfila. † Thomson.

mucilaginous or diluent drink; but emetics, which irritate the stomach, ought not to be given.

There is no specific antidote known.

SILVER.—The nitrate of silver, (*lunar caustic,*) is the preparation of this metal with which poisoning is most likely to be produced. *Lunar caustic* may be taken accidentally in solution, or a piece may be dropped into the throat and swallowed, when it is being used for touching ulcerations in this part.

The antidote is common salt, which should be given dissolved in water, or any diluent drink, as gum-water, milk and water, or flax-seed tea.

TIN.—Poisoning may be caused by any of the preparations of this metal, in which case milk, which is an antidote to its poisonous effects, ought to be taken in copious and frequent draughts, and the stomach pump used as soon as possible.

ZINC.—Poisoning is not unfrequently caused by the sulphate of zinc, (white vitriol.)

When this takes place, vomiting ought to be induced and aided by large draughts of mucilaginous and diluent drinks, such as milk, flax-seed, or slippery elm tea, gum water, sugar and water, or milk and water. The stomach pump

should be introduced as soon as a surgeon can be obtained.

The antidote is the carbonate or super-carbonate of soda.

Milk partially decomposes this poison, and injections of it should be given, to act on any that may have passed from the stomach into the bowels.

CHAPTER XI.

POISONING FROM MINERAL AND OTHER ACIDS.

NITRIC, (aqua fortis,) *muriatic*, (marine acid,) or *sulphuric* (oil of vitriol) *acid* may be taken by accident, and produce poisonous effects. The antidote is calcined magnesia, of which two ounces should be stirred up in half a gallon of water, and a tumblerful administered every two or three minutes, to neutralize the acid and induce vomiting. Where magnesia is not to be obtained, the *carbonate of soda*, or *potash*, may be given. Chalk powdered and given in solution, or strong soap suds, will answer a good purpose where the others are not at hand. It is of the utmost importance that something should be given at once, to neutralize the acid. One of these substances ought therefore to be given, until the *magnesia*, which is the most effectual, can be obtained.

At the same time, mucilaginous or diluent drinks should be taken freely, and the antidote may be given stirred up in them. Among the most easy to be obtained, will be found flax-seed or slippery-elm tea, gum-water, milk, or sugar and water. Emetics, or any thing which will irritate the stomach, ought to be avoided.

Oxalic Acid.—The resemblance which oxalic acid bears to sulphate of magnesia, (epsom salts,) renders it very liable to be mistaken for this substance, and swallowed in poisonous doses; and many accidents have occurred from this circumstance. They can easily be distinguished by tasting a small quantity. The salts, when applied to the tongue, have a very bitter taste, while the other is intensely acid.

The poisonous effect of this acid is very rapid, producing death sometimes in a few hours.

The antidote is *magnesia*, between which and the acid a chemical action takes place, producing the oxalate of magnesia, which is inert. An ounce of magnesia may be stirred up in a quart of water, and a tumblerful given every two or three minutes. Any of the mucilaginous drinks, such as flax-seed or slippery-elm tea, gum-water, or milk and water, will answer to administer the antidote in, and perhaps are to be preferred.

When magnesia is not at hand, *chalk* or *lime* rubbed up with water or any other drink, will answer as a substitute.

No time ought to be lost, but the stomach pump introduced as soon as a surgeon can be obtained.

Prussic Acid.—*Prussic acid* is the most deadly of all the poisons, as well as the most speedy in its action. This would undoubtedly be often

used by those wishing to commit suicide, were it not for the difficulty of obtaining it in its concentrated state.

As used in practice, prussic acid is very much diluted, and in the hands of judicious practitioners, is a valuable medicine.

If taken in its concentrated state, death is instantaneous. I have seen a dog instantly deprived of life by two drops applied to the tongue.

When poisoning does take place from this acid, it is most commonly from an over dose of it in its diluted or medicinal form.

The treatment should commence by the administration of an emetic of tartar emetic, of which as much as can be held on a ten cent piece should be dissolved in a tumblerful of warm water, and one half given at once, the balance in twenty or thirty minutes, if vomiting be not at that time produced. Flax-seed tea, gum water, or sugar and water, should be given warm and in copious draughts, to promote vomiting.

Chlorine, which is the antidote, should be administered as speedily as possible. Four teaspoons full of *chlorine water* may be put into a teacupful of water and one fourth given for a dose, and repeated every twenty or thirty minutes. If the chlorine water be not at hand, the chloride of lime, or the chloride of soda, may be given in a weak solution. Artificial respiration should be

kept up, as recommended at page ten, and cold affusions should never be omitted. Stimulants, such as hot brandy and water, ammonia and camphor, (See Appendix D.) should be given, together with a stimulating injection. (See Appendix B.)

Poisoning from over doses of Alcohol.

ALCOHOL, in the form of brandy, rum, gin, &c. when taken in excessive quantities, produce violent poisonous effects, and if relief be not obtained, often death.

Where this is the case, and a person is known to have swallowed a very large quantity of this liquid, the stomach should be evacuated without delay; and to effect this, as much *tartar emetic* as can be held on a ten cent piece should be dissolved in a tumblerful of warm water, and one half of it given, the balance to be repeated in fifteen or twenty minutes, if vomiting be not previously induced. Where tartar emetic cannot be obtained, sulphate of zinc (white vitriol) ought to be given, and as much of this as can be held on a cent may be dissolved in warm water, and given at once. But it may be that neither of these articles can be obtained; in which case, the back of the throat may be tickled with a feather, and if the person is able to swallow, copious draughts of warm water, or sugar and wa-

ter, should be given, and he should be made to take it. Cold applications ought to be made to the head, and the feet put into hot water, or hot mustard poultices applied to them.

The acetate of ammonia is said to act as an antidote to the poisonous effects of alcohol.

As soon as possible, the stomach pump should be introduced.

CHAPTER XII.

VEGETABLE POISONS.

The vegetable poisons are quite as numerous, and many of them equally as violent, as any in the mineral kingdon.

The little space allowed in a work of this kind will not permit me even to enumerate the whole of them, but I shall endeavor to describe clearly those which are more common, and which therefore are more liable to be taken.

Aconite—*Monkshood, Wolfsbane.*—Aconite when swallowed in an over dose or applied externally to a wound, produces very violent symptoms.*

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* Monkshood has been introduced into many of our gardens, as an ornamental flower, and the leaves may be eaten by mistake, as will be seen by the following case, taken from the Am. Journal of the Medical Sciences, for January, 1845.

At about 11 A. M., a boy aged fourteen, on passing a garden, looked over the wall, and asked a young man in the garden if he would give him some parsley; to which it was answered that he would get him some new parsley, as being much better than the old kind. The young man accordingly gave the boy a handful of green leaves, of which he ate some. In two hours, he complained of a burning sensation in the mouth, throat and stomach, and was very sick. For this, his mother made him take a glass of whiskey. Some time after

The treatment consists in evacuating, as speedily as possible, the poison from the stomach. Unless vomiting takes place spontaneously, an emetic should be given, of sulphate of zinc, (white vitriol) of which as much as can be held on a cent should be dissolved in half a tumblerful of warm water, and repeated in half an hour, if it do not in the mean time produce the desired effect.

Flax-seed tea, gum-water, or sugar and water, should be given in copious draughts, to promote the vomiting and render it easy. An injection of a pint of flax-seed tea, or starch, containing three tablespoonsful of oil of turpentine, and one of castor oil, ought to be administered.

The stomach pump should be introduced with as little delay as possible.

After most of the poison has been evacuated from the stomach, a strong infusion of coffee, or vinegar diluted with water, ought to be given.

BELLADONNA—*Deadly night-shade.*—From its

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this he took a fit and fell on the ground; at 6 P. M., on his mother's returning from her work, she found him lying across the bed, with his hands in his pockets, dead and stiffening. The blood-vessels within the head were found enormously distended, with dark colored fluid blood, upwards of a pound of which escaped from the skull and spinal canal. The stomach was empty, with a deep inflammatory blush over its whole internal surface, and here and there patches of a darker color. Farther dissection was not allowed.

frequent use as a medicine, Belladonna may be taken accidentally in an over-dose. When this is the case, it acts as a violent narcotic poison.

The stomach ought to be evacuated as speedily as possible, by means of emetics and the stomach pump. The best emetics to be used are *tartar emetic* and *white vitriol;* as much of the former as can be held on a five cent piece, or as much of the latter as can be held on a cent, should be dissolved in a tumbler of warm water, and administered at once—the same dose to be repeated in twenty or thirty minutes, if vomiting do not take place in that time.

Vomiting should be promoted by warm water, or sugar and water, after which vinegar and water must be given freely. The bowels should be cleared by cathartics and injections. (See Appendix, C, F.)

Bryony—*Bryonia.*—The root of Bryony, which is the part used in medicine, acts, when swallowed in an over-dose, as an acrid and violently irritating poison, and its use has, on account of this and the uncertainty with which it acts, been abandoned by regular practitioners.

When poisoning takes place from bryony, the stomach ought to be speedily evacuated, and for this purpose, the stomach pump should be introduced as soon as a surgeon can be obtained. In

the mean time, (it being improper to administer emetics, which would have a tendency to increase the irritation,) vomiting ought to be induced, if possible, by tickling the back of the throat with a feather or the finger, and the copious administration of some one of the following mucilaginous or diluent drinks, viz: warm flax-seed tea, gum or barley-water, or sugar and water, after which mucilaginous and anodyne injections must be given. (See Appendix, D.)

Camphor.—When taken in an over-dose, camphor acts as a narcotic poison. Its poisonous effects are best counteracted by evacuating the stomach, for which purpose the stomach pump ought to be used, if possible; if not, as much tartar emetic as can be held on a ten cent piece, should be dissolved in a tumblerful of warm water, and one half given at once, and the balance in twenty or thirty minutes, unless the first has produced vomiting, which ought to be promoted by copious draughts of flax-seed tea, gum-water, sugar and water, or any warm mucilaginous drink. After the poison has been evacuated from the stomach, wine whey and opium may be given. (See Appendix.)

Conium—*Hemlock.*—Hemlock, improperly called by many *cicuta,* when taken in an over-dose,

acts as a narcotic poison. It was by this narcotic that the Athenians used to destroy the lives of individuals condemned to death by their laws. Socrates is said to have been put to death by this poison.

When swallowed in an over-dose, the stomach should be evacuated by an emetic, or the stomach pump should be introduced without delay. The best emetics to be used are tartar emetic, or sulphate of zinc, (white vitriol;) as much of the former as can be held on a five cent piece, or as much of the latter as will cover a cent, should be dissolved in warm water, and administered at once, and repeated in twenty minutes or half an hour, unless the desired effect take place within that time.

Vomiting is to be promoted by warm water or warm sugar and water. The bowels ought to be cleared by cathartics and injections. See Appendix C and F.

Digitalis—*Fox Glove.*—When taken in an over-dose, or followed for a length of time in small doses, as a medicine, digitalis will produce poisonous effects of a narcotic character.

The treatment consists in evacuating the stomach by emetics, if vomiting does not take place spontaneously. The sulphate of zinc (white vitriol) is perhaps the best emetic to be used;

and of this, as much as can be held on a cent should be dissolved in warm water, and taken immediately, and the same quantity be repeated in twenty minutes or half an hour, if vomiting be not produced within that time. When vomiting does take place, whether spontaneously or by emetics, warm water or sugar and water ought to be given in copious draughts, to promote it, and render it more easy. After the stomach has been emptied, stimulants, such as brandy-toddy, or the carbonate of ammonia, should be given, to keep up and sustain vital action. (See Appendix E.)

Dulcamara—*Bittersweet.*—This medicine, when taken in an over-dose, will produce poisonous symptoms, which should be combated with emetics.

As much tartar emetic as can be held on a ten cent piece, should be dissolved in a tumblerful of warm water, and one half given at once; the balance in twenty minutes or half an hour, if the first has not in that time caused vomiting. Warm water should be given in large quantities, to wash out the stomach and render the vomiting easy. After the vomiting has ceased, a cathartic ought to be administered. (See Appendix F.)

Gamboge.—If swallowed in large doses, acts as

an irritating poison, inflaming the parts with which it comes in contact. Vomiting should be induced by large and frequent draughts of the following drinks, in which the carbonate of potash may be administered. Flax-seed or slippery-elm tea, gum, barley or rice water or milk. The fauces (back of the throat) should be tickled with a feather, and the stomach pump used if possible.

Hyosciamus—*Henbane.*—This drug, which is much used as a medicine, if taken in improper doses acts as a violent irritating and narcotic poison.

The proper course to be pursued when a person is under the influence of this poison, is first to evacuate the stomach by prompt emetics or the stomach pump; but the latter cannot of course be used until a surgeon arrives, therefore as much tartar emetic as can be held on a five cent piece, or as much sulphate of zinc (white vitriol) as will cover a cent, should be dissolved in warm water and administered at once, and the same dose repeated every twenty or thirty minutes, until vomiting is induced. Copious draughts of warm mucilaginous or diluent drinks, such as slippery elm, or flax-seed tea, gum-water, or sugar and water should then be given.

After all or nearly all of the poison has been evacuated the patient should be made to drink a

strong infusion of coffee, or a tumbler of water acidulated with vinegar or lemon juice, ought to be taken every few minutes.

LOBELIA—*Indian Tobacco.*—Professor Wood, speaking of this medicine in the U. S. Dispensatory, says,

"Its effects in doses too large, or too frequently repeated,are extreme prostration, great anxiety and distress, and ultimately convulsions and death.—Fatal results have been experienced from its empyrical use."

A few years since, I examined the body of a young man who the day before was in full health. Having taken cold he applied in the evening to a Thompsonian for advice, and he administered a lobelia emetic; the first not operating, he administered another, and another, until I believe three or four were given. The consequence was death in a very few hours.

The result of the examination which was made in the presence of five or six of the most eminent physicians of this place, and a very eminent surgeon, from Massachusetts, was a perfectly healthy state of the body, and that there was no cause for death other than the prostration produced by the lobelia.

Lobelia is frequently used by regular physicians in small doses, for diseases of the lungs; but

as an emetic it is rejected by them on account of its harshness and danger.

When taken in a poisonous dose, it ought as speedily as possible to be evacuated from the stomach. For this purpose, copious draughts of flax-seed tea, gum or barley-water, or sugar and water, should be administered warm. The back of the throat ought to be tickled with a feather, or the finger; and if vomiting is not induced by these means, and a surgeon, to introduce the stomach pump, cannot be obtained, tartar emetic, or the sulphate of zinc, (white vitriol,) must be given. Of the former, as much as can be held on a five cent piece, or of the latter as much as can be held on a cent, may be dissolved in a tumbler of warm water, and given at once. This should be repeated in twenty or thirty minutes, unless the desired effect be in the mean while produced.

After the poison has been evacuated from the stomach, stimulants, such as *brandy*, *ammonia*, &c., ought to be given. (See Appendix E.)

Opium.—Of all the vegetable poisons, opium and its preparations are the most frequently resorted to by the suicide—and from its common use as an article of medicine, is easily obtained. From this cause, also, mistakes are very liable to be made, and accidents to occur with it. The two preparations of laudanum and paregoric are

much more frequently than they ought to be, mistaken for each other, and the former given where the latter is intended. This generally occurs where it is administered to children, by the carelessness of the nurse, and is not discovered until the child begins to be affected by it, and not until, oftentimes, it is too late to save the life of the little sufferer.

Morphia in solution, or *morphine*, as it is more commonly called by the public, is another preparation of the drug under consideration, with which many cases of poisoning, either from design or accident, are produced. It is the active narcotic principle of the opium, and one grain is equal to six of this drug in its usual form.

When a poisonous dose of opium or any of its preparations has been swallowed, the stomach ought to be evacuated as speedily as possible, and to effect this, as much *tartar emetic* as can be held on a ten cent piece, ought to be dissolved in a tumbler of warm water, and one half given at once, and the balance in twenty minutes, if the first have not in the mean time operated, in which case vomiting ought to be encouraged by copious draughts of warm water or warm sugar and water. The use of the stomach pump, in these cases, is of the greatest importance, and should be resorted to without delay. After most of the poison has been evacuated from the stomach, a strong infu-

sion of coffee ought to be given, or some one of the vegetable acids, such as vinegar or lemon juice, should be administered, diluted with water. But on no account ought these to be given until the poison, or most of it, has been evacuated from the stomach.

The patient should be kept in motion and a happy effect will often times be produced by dashing a bucket of cold water over the head.

Artificial respiration as recommended at page ten ought to be established and kept up for some time.*

PULSATILLA.—The root, young shoots, and some other parts of the Anemone Pulsatilla, says Orfila, are poisonous, even when applied to the external surface, and some species are so acrid, that individuals have been poisoned and their eyes inflamed whilst in the act of pulverizing the different parts of this plant. Vomiting ought to be induced by tickling the fauces (back of the throat) with a feather or the finger, and diluent drinks, such as

*A case is reported in the North Am. Med. and Surg. Journal, of a child ten days old, who had taken by mistake, from twenty-five to thirty drops of laudanum, which was intended for the mother. It had completely lost the power of swallowing, was in a state of stupor, and had had several convulsions, and yet recovered after artificial respiration had been kept up two or three hours.

flax-seed or slippery-elm tea, barley, gum, or rice water, ought to be drank freely.

Emetics ought not to be given, but as soon as possible a surgeon should be obtained to introduce the stomach pump. After vomiting has ceased strong coffee ought to be given and an anodyne injection thrown up. See Appendix, D.

Sanguinaria—*Blood Root.*—When taken in an over dose, it acts as a violent irritating and narcotic poison.

The treatment should be precisely the same as that directed to be pursued where poisoning is caused by Hyosciamus, at page 66.

Savine.—This is a powerful irritating poison, and when taken in an over-dose should be evacuated from the stomach without delay. For this purpose the stomach pump should be used, or vomiting excited by tickling the back of the throat with a feather, and copious draughts of some mucilaginous or diluent drink, such as flax seed tea, gum-water, or milk. The oil of savine taken with criminal intent is the form by which its poisonous effects are generally produced.

Spigelia—*Pink Root.*—There is very little danger of this medicine's being taken in a sufficient quantity to produce its poisonous effects.—

But as such accidents have occurred, and as the medicine is one in very general use, particularly with children, to whom it is given to destroy worms, it may perhaps, be of service to give some directions as to the mode of treatment to be pursued in case such an accident should occur.

The stomach and bowels should be evacuated as speedily as possible, the former by a prompt emetic, and the latter by cathartics and injections. (See Appendix C and F.) As an emetic, the tartar emetic or sulphate of zinc (white vitriol) is to be preferred, either of which may be given as directed at page sixty-four, under the head of Conium. The vomiting is to be promoted by frequent draughts of warm water, or sugar and water.

After all, or nearly all of the poison is evacuated from the stomach, water acidulated with vinegar or lemon juice, ought to be given.

STRAMONIUM—*Thorn Apple.*—Stramonium is one of the most active narcotic poisons known, and when taken in over-doses, has in numerous instances speedily caused death. Children have sometimes been poisoned by gathering the seeds and eating them.

The evacuation of the stomach, either by means of emetics, or the stomach pump, is the most ef-

fectual means of affording relief, where poisoning takes place from this drug.

Tartar emetic, or sulphate of zinc, (white vitriol,) when a surgeon cannot at once be obtained to introduce the stomach pump, should be given. Of the former, as much as can be held on a five cent piece, (about three grains,) of the latter, as much as can be held on a cent, (from fifteen to twenty grains,) should be dissolved in a tumblerful of warm water, and administered without delay. This must be repeated in twenty or thirty minutes, if vomiting does not take place by the expiration of that time.

When vomiting takes place, it ought to be aided by copious draughts of mucilaginous or diluent drinks, such as flax-seed or slippery elm tea, gum or barley water, or where none of these can be had conveniently, simple warm water or sugar and water.

When nearly all the poison has been discharged from the stomach, and not until then, a strong infusion of coffee, or several tumblers of water acidulated with vinegar or lemon juice, should be given one after another, with an intermission of five or six minutes between each.

STRYCHNIA—*Nux Vomica.*—Strychnia or Strychnine is the active principle of the nux vomica, and next to prussic acid, is the most powerful poison known.

When poisoning takes place from this medicine, its action is usually so rapid that death takes place before any thing can be done to relieve it.

Where this is not the case, an emetic should be at once given, if a surgeon be not present to introduce a stomach pump. As much tartar emetic as can be held on a ten cent piece should be dissolved in a tumblerful of warm water, and one half given, and the balance in twenty minutes, if the first does not operate by that time.

Vomiting should be promoted by warm mucilaginous or diluent drinks, such as gum-water, flax-seed tea, slippery elm tea, or sugar and water, which must be given in large quantities. After vomiting has taken place, a stimulating injection, composed of castor oil a table-spoonful, oil of turpentine three table-spoons full, starch or flax-seed tea one pint, should be given.

This poison produces death by *asphyxia*, from paralysis of the lungs. A person, therefore, apparently dead from this cause, ought not to be given up, but artificial respiration, as directed at page ten, should be established and sustained for some time. This ought never to be neglected. Cold affusions, which are said to be useful in these cases, should be made by dashing a bucket of cold water over the body, or by sponging it with cold vinegar and water.

Unfortunately, there is no known antidote to this

poison, but it is said that an infusion of nut-galls will counteract the effects of it. These may always be given, as it will be easy to do so in the drinks that are taken to promote vomiting.

Tobacco.*—Taken into the stomach in improper doses—applied to the skin in the form of ointment—or administered as an injection, in too large

* The following case, in illustration of the speedy and violent effects of tobacco, is from the Med. Examiner, for 1841. A strong man, 55 years of age, had a tobacco injection administered to him for the relief of ascarides, (a species of worm.) The injection was ordered to be composed of one drachm and a half of tobacco leaves, in about six ounces of water; but by mistake, *fifteen* drachms of tobacco were used, and administered before the mistake was discovered. Seven or eight minutes had scarcely elapsed from the period of its administration, before stupor, headache, and extreme paleness of the face, made their appearance; pain was complained of in the abdomen, the speech became thick and indistinct, and slight convulsive movements were observed. A purgative injection was immediately administered, stimuli and strong coffee were also given, cloths dipped in cold water were applied to the head, and mustard poultices to various parts of the body. He was also bled pretty freely.

Notwithstanding all these means, the paleness of the face and surface of the body increased, the expression of the face was indicative of pain and stupor, the pupils of the eye were natural, the respiration became more and more laborious and slow; his intellectual faculties seemed to be greatly weakened, but he still occasionally understood questions which were put to him, though unable to answer to them distinctly; convulsive tremors were first observed in the arms, but soon extended to the legs and trunk of the body, and went on increasing

a quantity, tobacco will produce poisonous symptoms similar to those produced by *lobelia*, and the treatment must be precisely the same as directed at page sixty-eight, for that poison.

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in severity for six or seven minutes, after which a state of complete prostration came on, attended with slow and very painful respiration. Well marked coma, (profound sleep,) with complete relaxation of all the muscles of the body, preceded the fatal termination, which took place about *eighteen minutes* after the administration of the injection.

CHAPTER XIII.

POISONOUS MUSHROOMS.

It is the more important, says Orfila, to point out in a general manner the external characters of bad mushrooms, as most of those which are eaten without inconvenience, may become dangerous when placed in certain circumstances. Unfortunately the marks which we can point out, are not so precise as not to admit of exceptions.

The mushrooms to be avoided are those which grow in wet shady places, or in cellars. The smell of this description is nauseous, and they have a more dirty appearance, and are softer and more porous than those which are used as an article of food.

The same, says Orfila, is true of those whose taste, being at first sweetish, leaves a disagreeable, astringent, and styptic sensation in the mouth; and of those whose taste is very bitter and unpleasant, and whose smell is disgusting. It should be remarked, however, that there are some eatable mushrooms having a smart, garlicky, or slightly acid taste. Those mushrooms should be rejected, which are filled with a milky juice, that ordinarily is acrid. According to M. Persoon, the color cannot be regarded as affording very certain

characteristics; though this botanist thinks it to be established, that mushrooms of good quality are white, pale, of a clear and golden yellow, or of a claret and violet red. Bad mushrooms, on the contrary, have a lemon-yellow or blood-red color. The dark brown color of the top will not serve to distinguish the good from the bad, it being common to both.

The eatable mushrooms are whiter, drier, more compact and brittle than the kind which are to be rejected; and unless they have the unpleasant taste and smell referred to above, should be chosen.

Mushrooms which have done flowering, and which are fading and undergoing decomposition, are to be rejected as dangerous. It is commonly believed that the presence of worms or snails upon mushrooms, prove their good quality; this is not the case, as they are quite as often found upon those which are poisonous.

They ought to be gathered in dry weather, and should be cut from the foot-stalks, for if pulled by the roots, they are apt to be gritty, from the dirt's insinuating itself into the pores of the plant.*

Vinegar and water is said to extract their poisonous qualities, and render the most poisonous harmless. The liquid should be thrown away

* Orfila.

after they have been soaked in it, as it contains all the poison of the plant.

When poisoning takes place from mushrooms, the stomach should be evacuated as soon as possible; and for this purpose as much tartar emetic as can be held on a ten cent piece should be dissolved in a tumbler of warm water, and one half given at once and the balance given in fifteen or twenty minutes, if the first dose does not by that time have the desired effect. Vomiting should be promoted and rendered easy by large draughts of some mucilaginous or diluent drink, such as flaxseed or slippery-elm tea, gum or barley-water, sugar and water, or simple warm water. After vomiting has taken place, cathartics and injections ought to be administered to evacuate the bowels. (See Appendix C and F.)

Where there is much prostration, stimulants, such as brandy, in small quantities, the carbonate of ammonia, or ether, may be given. (See Appendix E.)

CANTHARIDES—*Spanish Flies.*—Cantharides are used in medicine internally, in the form of a tincture, and externally, mixed with lard, making the common blistering plaster. Their poisonous effects may be produced either by an over-dose of the tincture, or by their being absorbed into the system through the skin.

The immediate treatment should be the administration of flax-seed tea, gum or barley-water, or any other mild, soothing drink. Injections of flax-seed or slippery elm tea, should be given, but on no account ought emetics, or any irritating substances to be administered. A surgeon should be obtained without delay, to treat the violent symptoms which follow the improper or accidental use of this medicine.

CHAPTER XIV.

SIGNS OF REAL DEATH, AND MEANS OF DISTINGUISHING IT FROM SUSPENDED ANIMATION.

As has been observed in the foregoing chapters, apparent death is not of unfrequent occurrence, either from accidental blows or falls, from drowning, from the vapor of charcoal, or from some narcotic poison.

That fatal results have taken place from the want of knowledge on this subject, there can be no doubt. I have therefore translated the following from the work of the celebrated French physician and chemist, M. Orfila, it being very full and explicit on this subject.

It is not unfrequently the case that persons considered to be dead, have been restored to life at the moment when they were to have been opened or buried, or even when they were already in the coffin or the tomb.

And undoubtedly many of them have died from being prematurely buried. This fatal mistake arises from the difficulty of distinguishing real from apparent death. It is important, therefore, to examine with care the value of the signs which

have been regarded as proper to establish the distinction of which we speak.

First. One of the most certain signs of death is the stiffness of the corpse ; but as it happens sometimes that this sign manifests itself during life, it is necessary to establish the differences which exist between the stiffness of death, and that which affects a person laboring under disease or suspended animation.

When a member is stiff from tetanus, convulsions, etc., great difficulty is experienced in changing its position, and when this has been done, it immediately returns to its former state. But in the stiffness of death this is not the case, the member remaining in the position in which it was last placed.

The stiffness which takes place in certain fainting fits, cannot be mistaken for the stiffness of death. For in fainting fits it takes place immediately, and the breast and abdomen retain their heat ; whilst the stiffness of a corpse does not take place until sometime after death, and when we can no longer perceive any heat in the body.

The stiffness observed in suspended animation, is easily distinguished from the stiffness of death. Let us suppose a person to be in a state of suspended animation for ten or fifteen minutes, whose limbs are stiff ; it is impossible that this stiffness can be the result of death, since the bodies of

those who die of asphyxia, do not become stiff for several hours.*

A person in a frozen state will be stiff, who is not dead, and is capable of being restored to life. This stiffness should not be confounded with the stiffness of death, because we know that the body has been subjected to the action of severe cold, and above all, because the stiffness is general over the whole body ; and the skin, breast, abdomen, and all the organs, are as hard as the muscles—which is not the case in the stiffness of a corpse, in which the muscles alone offer any great resistance. When firm pressure is made with the finger, upon the skin of a person frozen, a hollow is thereby produced, which very gradually disappears. When the position of a frozen member is changed, a slight noise is caused by the breaking of the icicles contained in the part moved.

The stiffness which the late M. Nysten has called convulsive, and which manifests itself in severe nervous diseases, may be easily distinguished from the stiffness of death.

If the body of a person dying from asphyxia† caused by impure air, or by strangulation, is cold, it is certain that more than twelve hours have

* The more sudden the death, the slower rigidity takes place.

†*Asphyxia* is taken from the Greek, and means a want of pulse, and by it physicians understand suspended animation.

elapsed since the asphyxia first took place; for in such cases, the heat of the body is preserved, for at least twelve hours; and doubtless the stiffness is that of death, for it is impossible to live in a state of asphyxia for twelve hours.

Secondly. If from some unforeseen cause the individual, who is thought to be dead a long time, is cold and soft, whilst a certain degree of stiffness ought to be present, his interment ought not to be hastened. Before deciding that death has actually taken place, a muscle of the arm or the thigh ought to be laid bare, and electrified by means of the Galvanic battery. If it does not give any sign of contraction, life is extinct; if contraction does take place the individual is not dead, and the means heretofore directed for restoring the action of the heart and lungs should be adopted.*

Thirdly. The sign of death most certain, is *well-marked putrefaction.* But is it well to wait for the complete development of putrefaction, before proceeding to the interment? This practice is dangerous to the assistants, and ought to be abolished. It has been thought that the commencement of putrefaction is sufficient to confirm the death of the individual, and that the body should be intered immediately after this sign man-

* See Chapter II. on drowning.

ifests itself—and we are of this opinion—*but it should be impressed that it does not belong to the unprofessional to decide whether or not putrefaction has commenced, the physician alone can establish this fact.* We have often seen persons who were thought to be dead emitting an offensive odor, with purple blotches and some other signs of putrefaction, restored after the lapse of some hours, by the aid of appropriate remedies. Under some circumstances, these appearances take place from the mortification of a limb.

Fourthly. That state of the face, of which Hippocrates has given the following description, has been regarded as a sign of real death: Forehead wrinkled and dry; eyes sunk; nose pointed, surrounded by a purple or blackish circle; temples shrunk; ears drawn back; lips hanging; cheeks sunk; chin wrinkled and hard; color of the skin leaden or purplish; hair of the nostrils and eyelashes sprinkled with a yellowish white powder. Taken by itself, this sign is of no value, for it is sometimes observed in persons twenty-four or forty-eight hours before death, and on the other hand it is often wanting in individuals who have died suddenly.

Fifthly. The softness, sinking, flaccidity and dimness of the eyes, have been considered by some celebrated physicians to be a certain sign of real death. If it is true that the eyes are dull

and sunk after death, it is equally true that this effect is not always observed—that it occasionally takes place during the life of the individual, and consequently that it is not sufficient to establish the reality of death when taken exclusively.

Sixthly. The absence of the circulation, the impossibility of feeling the beating of the heart, and the pulsation of the arteries, have been regarded as infallible means of deciding if the individual is dead; but it is fully proved that a person may live many hours, without its being possible to perceive the least movement in the parts of which we have spoken. This sign is one of those which is of the least value. It is sometimes found very difficult to ascertain whether the heart and arteries are beating, either because they are very feeble, or because they are misplaced.

Seventhly. An individual has been considered as dead, *when he ceases to breathe;* and in order to be assured of the exercise of this function, many expedients have been resorted to; some apply the flame of a candle or a little carded wool to the mouth and nostrils, and they judge that the person does not breathe, if these are not agitated; others have arrived at the same conclusion, when a mirror, placed before the mouth, is not tarnished; and there are others who advise placing a tumbler of water a little above the

pit of the stomach, (the patient lying upon his back,) thinking that if the water is agitated, the breathing still continues. Experience proves that none of these signs are sufficient to establish the reality of death.

Eighthly. It has been thought that the individual is dead when he is cold, and that he still lives if he preserves his warmth. This perhaps is of the least value of all the signs, for drowned persons who can be restored to life, and many other individuals, are ordinarily very cold; whilst those suffocated, etc., preserve their heat even a long time after death.

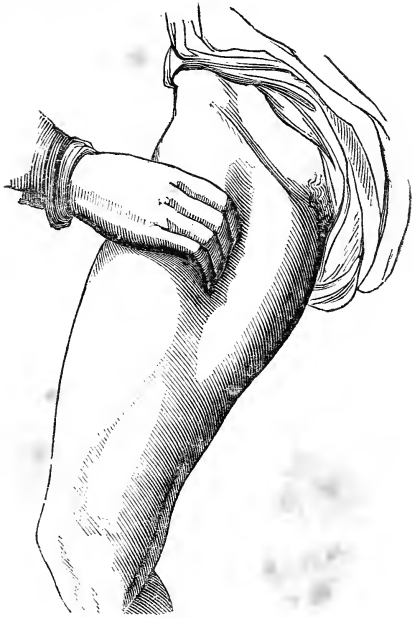
Ninthly. Incisions, burns, blisters and cupping glasses, employed sometimes to ascertain if a person be dead, ought to be considered as secondary means, since experience proves that in certain diseases, the sensibility is so destroyed that the patients do not feel any pain, even three or four days after their application. These therefore, can be regarded as valuable, only when they furnish positive results; that is to say, when the person who is believed dead feels the pain, and consequently gives signs of life; in the contrary case, you may be assured that the individual is dead.

Conclusion.—The result of the preceding explanations show

First. That no one of the signs enumerated, taken by itself, (except well marked putrefaction,) is sufficient for pronouncing a person dead.

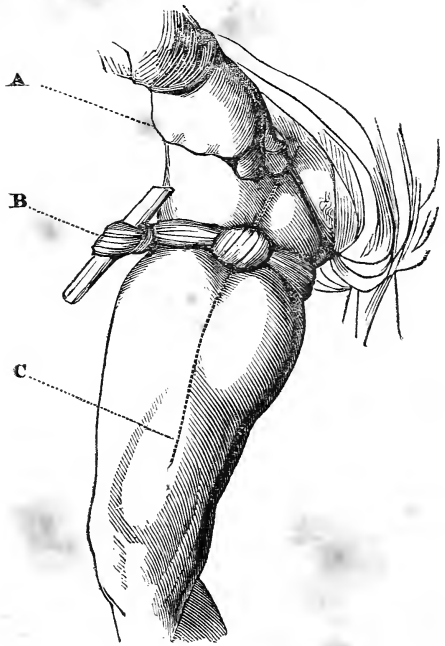
Secondly. That death ought to be regarded as real, in an individual who combines all these signs.

PLATE I.



The above Cut represents the hand making compression over the main or femoral artery in the thigh.

PLATE II.



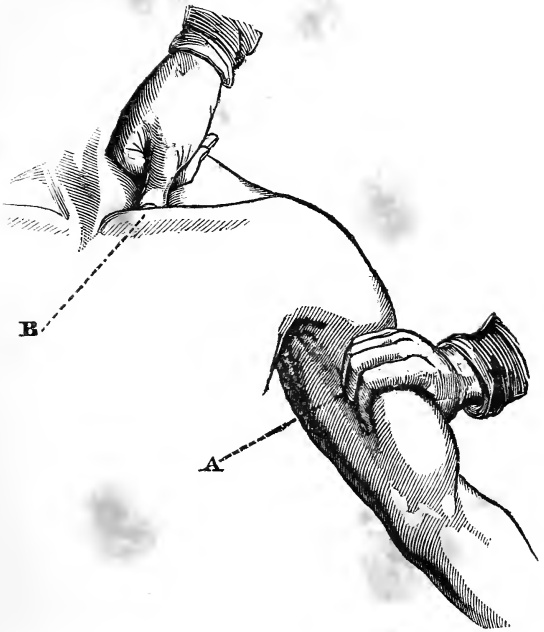
The above cut represents the compression of the main or femoral artery in the thigh and groin.

A—The hand and stick compressing the artery where it passes over the bone at the groin.

B—The handkerchief and stick.

C—A dotted line showing the course of the vessel.

PLATE III.

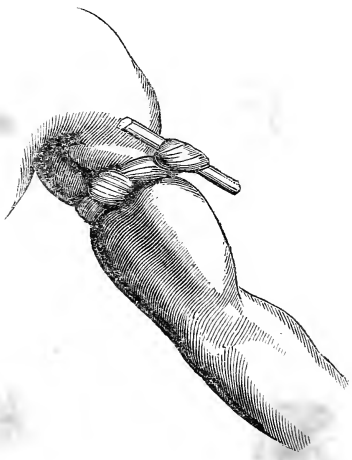


The above cut represents the arm and neck.

A—The hand compressing the main or brachial artery.

B—The thumb making compression on the subclavian artery (of which the brachial is a continuation) where it passes over the first rib behind the collar bone.

PLATE IV.



The above cut represents the arm with the handkerchief and stick, compressing the main artery.

APPENDIX.

A.—MUSTARD POULTICE.

Mustard Poultices may be made in the following manner:

Take of mustard in powder, a sufficient quantity, mix with hot vinegar until of the proper consistency.

Where these poultices are to be applied to children, or persons of thin, delicate skins, the mustard should be mixed with an equal quantity of rye or flax-seed meal.

B.—STIMULATING INJECTION.

Take of Oil of Turpentine, three tablespoonfuls;
Castor Oil, one tablespoonful;
Flax-seed tea, or starch, one pint.

Mix.

C.—SIMPLE INJECTION.

Take of Molasses, a teacupful;
Salt, a tablespoonful;
Warm water, a pint.

Mix.

D.—ANODYNE INJECTION.

Take of Laudanum, sixty drops;
Starch, a teacupful.

Mix.

E.—MIXTURE OF AMMONIA.

Take of Carbonate of Ammonia a heaping teaspoonful, Mucilage of Gum Arabic, a teacupful and a half.

Mix. Dose, a tablespoonful.

Or, Ammonia may be combined with Camphor, as follows:

Take of Carbonate of Ammonia and Camphor, in powder, each a teaspoonful; Mucilage of Gum Arabic, a teacupful and a half.

Mix. Dose, a tablespoonful.

F.—CATHARTIC INFUSION.

Take of Senna leaves a handful,
Salts a heaping tablespoonful,
Manna a piece the size of a hen's egg,
Cardamom seeds (bruised) a level tablespoonful.

Steep for half an hour, in a pint of boiling water. Dose, a teacupful every hour, until it operates.

CATHARTIC PILLS.

The best as well as the safest physic that can be used in the form of pills, when a brisk cathartic ope-

ration is desired, are those recommended in the United States Pharmacopœa, under the name of the "*Compound Cathartic Pills.*" They should take the place in every family of the numerous *patent* and empyric medicines of this class which are now so much in use. They are not only sure, but mild in their operation, and where a cathartic is necessary, can do no harm. They are an excellent bilious pill, and can be had of any of the apothecaries, (the recipe being no secret.) Where only a slight operation is desired, one will answer the purpose; but where a thorough evacuation is needed, two or three should be taken at bed-time.

MUCILAGE OF GUM-ARABIC.

Mucilage of Gum-Arabic is made by adding four tablespoonfuls of the gum in powder, to half a pint of hot water. Add the water gradually to the gum, rubbing them together, till the mucilage is produced.—*U. S. Pharmacopœia.*

FLAX-SEED TEA.

Flax-seed Tea is made by steeping, for a short time, two (level) tablespoonfuls of flax-seed in a quart of boiling water.

BARLEY-WATER.

Take of (Pearl) Barley two tablespoonfuls (heaped;) water, four pints and a half. First wash away, with cold water, the extraneous matters which adhere to the barley; then pour upon it half a pint of the water, and

boil for a short time. Having thrown away this water, pour the remainder, boiling hot, upon the barley; then boil down to two pints, and strain.—*U. S. Pharmacopœia.*

SLIPPERY ELM TEA.

Take of slippery elm in powder a handful—steep until mucilage is formed.

WINE WHEY.

Wine whey is made by boiling half a pint of milk and adding a wineglassful of white wine.

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